AFCCC Strategic Weather Now

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Commander's View

Lt Col Eric McKinley

AFCCC offers you capabilities unlike any other AFW organization. Many folks in the weather or "weather impact" businesses are aware of this, but it's clear not enough are. So we intend to offer warfighter-focused information in this forum on a recurring basis.

Given the nature of our product line, as well as developments in modeling and simulation capabilities we can operationalize, I see great opportunity for integrating ourselves into your warfighter's planning and operations. Climatology is core to a series of processes we use to create products you need, however what we truly serve up is strategic weather operations and intelligence on a daily basis. Who we impact most frequently are strategic and operational level planners. Yet, we also regularly influence daily operations at all levels, providing go/no-go decision support for GWOT missions worldwide.

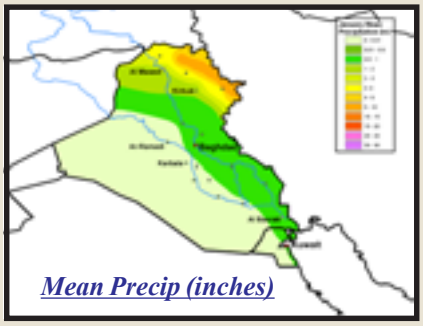
Our presence is available at three levels of classification and our drive is to web-enable our support as quickly as we can obtain resources to do so. Our application of GIS display capabilities is arguably on the forefront in AFW. We are working and succeeding at overhauling our infrastructure so the time required to store, process and apply climate data drops significantly. We also measure our ability to support every support assistance request. We'll include information along these lines and more, providing MAJCOM and COCOM staffs insight into how well we support your units and their warfighters.

Ultimately, I hope you'll feed us with requirements that describe how we can better impact you. We are available day or night to meet your needs, and we'll continue to respond as accurately and fast as possible to every request. My thanks for indulging us with your time; my direct and simple request is you take advantage of this great organization.

Lt Col McKinley
DSN: 673-9000 or COMM: (828) 271-4201
eric.mckinley@afccc.af.mil

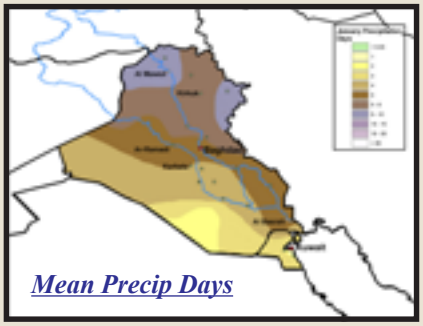
HOT SPOTS

AFCCC provides a wide range of support to the war fighters. The graphics and bullets shown here offer January climate data for Iraq. They are just samples of the range produced by the Operational Climatology Branch.



Mean Precip (inches)

- Winter weather is generally fair, but passing storms affect the area every 3-5 days.
- Dust and sand lift in strong winds behind and ahead of troughs and fronts.
- 24-36 hour shamals (strong northwesterly winds) occur with deep polar surges.
- Intense, deep lows can produce heavy thunderstorms and localized flooding.
- Temperatures typically mild except in high mountains. Cold outbreaks can bring freezes.



Mean Precip Days

- January and February are the biggest snow months; snow is rare in southern half of Iraq.
- Nocturnal fog in Tigris and Euphrates River valleys can occur ahead of lows.
- Foehn winds can occur in the northern plains with cold, northerly flow.

Contact Mrs.Higdon at DSN 673-9001/COMM (828) 271-4218 or melody.higdon@afccc.af.mil.

Branch Spotlight

The Climatic Modeling Team (CMT) in AFCCC/DOM generates gridded data to produce standard and derived climatological information in areas where it is sparse. Modeled output can be put in a range of formats tailored to any region, time of year, resolution, and variable. For example, the Marines at Beaufort, S.C. needed climatological cloud top data by month for flight routes between Alaska and Japan. The CMT tapped high-power computers at the Vicksburg, Mississippi Major Shared Resource Center and ran the 10-year period of record (much faster than they could have with in-house resources) to build 1200 images for the Marines. For more information about the CMT and how it can help you provide mission planning and forecast support, contact Maj Gravier at DSN 673-9010/COMM (828) 271-4318 or ann.gravier@afccc.af.mil.

More Branch Spotlight

ACMES. The Advanced Climate Modeling & Environmental Simulations (ACMES) program generates gridded standard and derived data and provides summarized regional climate statistics for locations worldwide. ACMES is not a direct forecast tool. Its strategy is to model historical worldwide weather data and produce a grid that fills the gaps between data sources. ACMES also models parameters not collected by observation networks, such as turbulence, icing, and percent of illumination.

A valuable asset to the warfighter from mission planning to execution, ACMES helped determine runway orientations in Afghanistan and helped analyze potential heat stress on combatants in the Iraq AOR. It also generated cloud top information to help select optimal flight routes over the Pacific Ocean and engineer better equipment for the warfighter. The Airborne Laser program uses ACMES data to study the impacts of optical turbulence on sensors.

ACMES can help answer many weather-related questions. For more information, contact Dr. Applequist at DSN 673-9010 or commercial (828) 271- 4318 or scott.applequist@afccc.af.mil.

Environmental Scenario Generator (ESG). AFCCC is the modeling and simulation (M&S) center for atmospheric and space weather data. The M&S backbone is the ESG, which provides customers an interface to ACMES and other data sets for scenario construction. This program, now partially implemented at AFCCC, allows a simulation user to specify a place and environmental conditions and find historical air/space scenarios to match them. ESG will eventually tap the entire AFCCC database.

Its basic technology has potential uses well beyond M&S and will eventually support every AFCCC operation. We will also integrate other programs such as Warfighter Weather Effects—a search capability based on weapon system and mission effects—and MM5, which will provide an even greater capability for planners, operators and the warfighter. When complete, it will build an integrated and consistent data set meeting customer-defined conditions. ESG is unique and the cornerstone of the M&S environmental support. A working prototype now, it will be fully operational by the end of FY05. Contact Capt Cloys at DSN 673-9016, COMM (828) 271-4209 or kenneth.cloys@afccc.af.mil.

What's New

Narratives. AFCCC now has a new format for narrative studies. The format consists of PDF files with graphics included. The following studies are available at https://www.afccc.af.mil:

- Liberia
- Sierra Leone
- Ivory Coast
- Hauer Pass, Iraq
- Lilongwe, Malawi
- Spin Boldok, Afghanistan
- Syrian Arab Republic
- Amman Jordan
- Piñion Canyon, Colorado, USA

ExPERT. AFCCC is currently developing version 2.0 of the ExPERT (Extreme Percentiles and Reference Tables) program. ExPERT provides extremes, percentiles and duration values for several meteorological parameters to aid design analysis. ExPERT 2.0 offers increased capability and flexibility through a Java application that can reach back to AFCCC for data or use locally- staged data. Additional stations will augment the current set. ExPERT 2.0 is planned for release in July 2004. For further information, please contact Mr. Kiess at DSN 673-9018 or raymond.kiess@afccc.af.mil

Point Analysis. Are you tired of waiting while AFCCC manually processes point analysis requests you submitted through the Joint Worldwide Intelligence Communications System (JWICS)? Relief is here. Up to now, when a customer submitted a request through JWICS, analysts in our National Intelligence Support Branch had to hand carry the request to our collateral server and then hand carry the results back to JWICS to send it to the customer.

In order to speed up the process, we bought a database server specifically for our JWICS user community, and we plan to connect it directly to JWICS by January 30th. What does this mean for you? When you submit an Atmospheric Slant Path Analysis Model (ASPAM) request, it goes straight to the new server for automatic processing and then is sent back to you via JWICS. This sharply reduces turn-around time because no humans are involved. The new server is currently configured to hold 90 days of data to support ASPAM but can be expanded. Contact Capt. Phillips at DSN 673-9011, COMM (828) 271-4192 or stephen.phillips@afccc.af.mil.

Joint Operations

AFCCC and the Fleet Numerical Meteorological and Oceanographic Detachment (FNMOD) recently stood up a new product area that deals with joint "hot spots." Available on SIPRNet and JWICS (http://afccc.ic.gov), the site offers both FNMOD and AFCCC products. Not a replacement for tailored, service-specific support available from our unit sites, it provides information for briefing joint warfighters and planners. It should be of interest to all who support joint operations. Send feedback to Mr. Walters (DSN 673-9004 or Comm (828) 271-4291) or kenneth.walters@afccc.af.mil.

Library Corner

The Air Force Weather Technical Library works with the American Meteorological Society (AMS) to provide online journal articles to members of AFCCC and HQ AFWA. These articles are from the AMS print journals published since 1944. The URL (http://ams.allenpress.com/amsonline/?request=search-simple) will take you to the search page for these articles. You may use the electronic copy and/or make paper copies for professional use or your personal use for an approved course of study or research. Copyright laws prohibit the further transmission of these articles outside of the licensed weather groups, but other weather groups can be licensed to gain access. Contact Mr. Gray at DSN 673-9019 or john.gray@afccc.af.mil.

Climo Tidbits

Station Observation Climatic Summary (SOCS). Purpose is to summarize weather parameters by month, for a given location. These include observed parameters such as visibility and temperature, and calculated variables such as relative humidity and heating degree days.

For Operational Support Contact:
e-mail: doo@afccc.af.mil
Comm Phone: (828) 271-4291
DSN Phone: (312) 673-9004
niprnet: https://www.afccc.af.mil
siprnet: http//afccc.asheville.af.smil.mil

Operational Impacts

To show the range of our capabilities and their impact on our customers, here are a few examples of recent projects:

• Generated surface and upper air data associated with a ten-year period of interest for 45 WS. After discussions with AFCCC, they revised the specifications for their requirements, and we quickly created customized data to meet the criteria. The data will be used to support a simple no-skill forecast baseline to measure the accuracy of local thunderstorm forecasting techniques.

• Produced summarized upper air temperature and wind data for four sites to create specific statistics for the AFRL/Defense Experiment Support Activity. This helped refine the structural design of a High Altitude Airship Platform and plan test missions for $140M Defense Agency advanced concept demonstration.

• Summarized 22 million observations for 3,200 worldwide stations for the Army Joint Land Attack Cruise Missile Defense Elevated Netted System (JLENS) so the customer could determine feasibility of using commercially available components with extreme surface temperature data. The data convinced the developer there would be major cost savings and little mission impact if he reduced his temperature range requirements

• On a one-day turnaround, AFCCC provided summarized ceiling and visibility data on airports in Iraq for forecasters at Ali Al Salem, Kuwait. Products helped the forecasters determine best times for aircrews to fly into Iraq AOR and reduced number of flights that had to abort due to bad weather

• Provided weather data for AETC/CC study on pilot production pipeline at four Specialized Undergraduate Pilot Training bases. The customer used the data to determine optimum student loads at each SUPT base and reduce current backlogs, which reduced student attritions and saved $500K annually.

• Provided weather observations associated with extreme sand storm event on 25 March 2003 in Iraq to Task Force Enduring Look for a CSAF-directed study/report on effects of sandstorm on OIF. The study will identify impacts of storm on friendly/enemy forces and provide lessons learned for future warfighters.